Advanced Component Testing

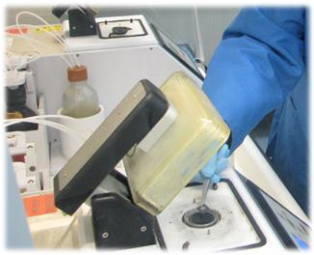
VISUAL, CHEMICAL, IMAGING & MECHANICAL SCREENING FOR SUBSTANDARD AND COUNTERFEIT PARTS

ISO 17025 ACCREDITED LABORATORY

U.S. DLA QTSL Audited & Assessed

QUALITY/AUTHENTICITY INSPECTION

Counterfeit electronic components are a global threat to every industry. One of the best ways to mitigate the risk associated with *either* buying parts that can only be sourced on the open market *or* using parts from aged inventory lacking trace documentation is to inspect and test for quality and authenticity. Undetected substandard parts can result in significant delays and costs as well as premature product and system failures that can have serious impacts ranging from loss of business to loss of life. That is why it is so important that you choose a competent and reliable test house!



Advanced Component Testing (ACT) is an ISO17025-certified facility with Lab Suitability accreditation from the U.S. Defense Logistics Agency for testing electronic components to MIL-STD-750, -883 and -202 specifications. All screening is performed by highly trained inspectors who are experts in spotting the most subtle signs of counterfeiting. ACT technicians and engineers execute electrical testing via specialized test equipment and custom designed test fixtures.

Having met the most rigorous mil/aerospace standards, ACT is supremely well qualified to perform quality and authenticity screening on electronic components for OEMs, OCMs and distributors serving the commercial, automotive, communications, medical and industrial sectors.

Inspections & Tests

- Physical Dimension
- External Visual
- Component Surface
- Lead Condition Inspection
- Marking Permanency
- Blacktopping (resistance to solvents)
- Internal Visual Die (DPA)
- XRF Material Analysis
- X-Ray Die Bond/Frame Inspection
- Visual Testing via SEM
- IC Decapsulation/De-lidding
- Heated Solvent Testing (HST)
- Mechanical Scrape Test
- BGA Inspection
- Electrical Curve Trace
- OCM Database Comparison

Compliance

ACT staff inspects and tests parts to the following standards.

- AS6171 Counterfeit Detection Testing Procedures
- AS6081 Counterfeit Avoidance Protocol
- DFARS Part 252.246-7007 Contractor Counterfeit Electronic Part Detection and Avoidance System
- CCAP-101 for Counterfeit Components
- IDEA-STD-1010 Visual Inspection Standard
- MIL-STD-750, Over 100 Test Methods
- MIL-STD-883, Over 50 Test Methods
- MIL-STD-202, 11 Test Methods

DEVICES

PASSIVE
Capacitors
Inductors
Resistors

DISCRETE SEMIS
Arrays
Diodes
Rectifiers/SCRs
Transistors
TRIACs

LINEAR
ADCs, DACs
Analog Switches
Op-Amps
Opto Couplers
Voltage Regulators

DIGITAL
CMOS, ECL, TTL

MEMORY
DRAM, SRAM, EEPROM, EPROM, Flash

MICROPROCESSORS

And more:
mixed signal + non-discrete

PACKAGES

Axial Leaded
DIP
DPAC
QFP
PLCC
Radial Leaded
SOIC
SOP
SOTxx
TOxx
TSOP
And More…

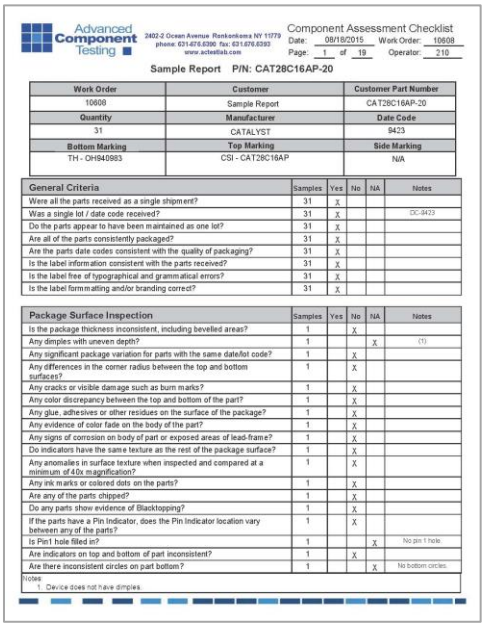
ACT Process

The goal of the counterfeiter is to create *what appears to be* an unused device of a specific part number made by a reputable, as-marked manufacturer. Aware of the fact that there may be an attempt to verify the authenticity of an EEE part, counterfeiters sporadically alter their techniques to evade detection. It takes a trained inspector with hands-on experience identifying suspect electronic devices following a rigorous set of procedures to uncover anomalies and other signs that a device may not be authentic. ACT begins the process with thorough documentation verification and then continues with the series of inspections and tests on the required sample as per the applicable test plan.

- Microscope inspection – At 40X magnification on the sample quantity
- Non-destructive authenticity screening – Such as resurfacing and dimensional inspections, XRF testing, X-ray die bond/frame inspection
- Non-destructive electrical tests (if requested) – Including VI curve trace (for basic authenticity) or more advanced electrical tests
- Destructive authenticity tests – Such as HST, de-lidding/die inspection and solderability testing

Comprehensive Reports

ACT's Certificate of Compliance report includes detailed results, full read-record or pass/fail data (for electrical tests), color photos, and a parts history analysis.



Advanced Component Testing
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www.actestlab.com

Component Assessment Checklist
Date: 08/18/2015 Work Order: 10608
Page: 1 of 19 Operator: 210

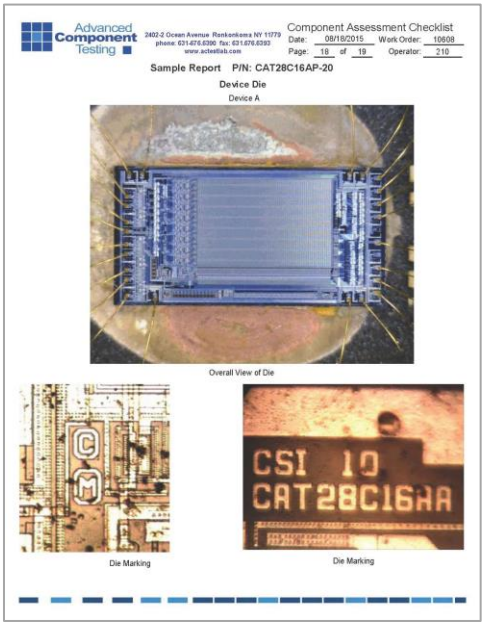
Sample Report P/N: CAT28C16AP-20

Work Order	Customer	Customer Part Number
10608	Sample Report	CAT28C16AP-20
Quantity	**Manufacturer**	**Date Code**
31	CATALYST	9423
Bottom Marking	**Top Marking**	**Side Marking**
TH - OH940983	CSI - CAT28C16AP	N/A

General Criteria	Samples	Yes	No	NA	Notes
Were all the parts received as a single shipment?	31	X			
Was a single lot / date code received?	31	X			DC-9423
Do the parts appear to have been maintained as one lot?	31	X			
Are all of the parts consistently packaged?	31	X			
Are the parts date codes consistent with the quality of packaging?	31	X			
Is the label information consistent with the parts received?	31	X			
Is the label free of typographical and grammatical errors?	31	X			
Is the label formmatting and/or branding correct?	31	X			

Package Surface Inspection	Samples	Yes	No	NA	Notes
Is the package thickness inconsistent, including bevelled areas?	1		X		
Any dimples with uneven depth?	1			X	(1)
Any significant package variation for parts with the same date/lot code?	1		X		
Any differences in the corner radius between the top and bottom surfaces?	1		X		
Any cracks or visible damage such as burn marks?	1		X		
Any color discrepancy between the top and bottom of the part?	1		X		
Any glue, adhesives or other residues on the surface of the package?	1		X		
Any evidence of color fade on the body of the part?	1		X		
Any signs of corrosion on body of part or exposed areas of lead-frame?	1		X		
Do indicators have the same texture as the rest of the package surface?	1		X		
Any anomalies in surface texture when inspected and compared at a minimum of 40x magnification?	1		X		
Any ink marks or colored dots on the parts?	1		X		
Are any of the parts chipped?	1		X		
Do any parts show evidence of Blacktopping?	1		X		
If the parts have a Pin Indicator, does the Pin Indicator location vary between any of the parts?	1		X		
Is Pin1 hole filled in?	1			X	No pin 1 hole
Are indicators on top and bottom of part inconsistent?	1		X		
Are there inconsistent circles on part bottom?	1			X	No bottom circles

Notes:
1. Device does not have dimples



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Page: 18 of 19 Operator: 210

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Device Die
Device A

Additional Services

In addition to authenticity inspection and testing, ACT also offers:

- Comprehensive functional and parametric electrical testing
- Material analyses including XRF metal composition and RoHS/MIL lead compliance
- Logistics services including bake out/dry pack and tape and reeling
- Solderability testing, device programming/erasure, fine/gross leak testing and more

IDEA-STD-1010B

ESD ASSOCIATION 20.20 CERTIFIED

Certified System Quality ISO 9001

GOVERNMENT - INDUSTRY DATA EXCHANGE PROGRAM GIDEP

SMTA Surface Mount Technology Association

erai MEMBER